PERMIT

Permit No. NH0001465
Page 1 of 22

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"),

Public Service of New Hampshire
Merrimack Station

is authorized to discharge from the facility located at

Bow, New Hampshire 03301

to receiving waters named:

Merrimack River

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective (30) thirty days from the date of issuance.

This permit and the authorization to discharge expires (5) five years from the effective date.

This permit supersedes the permit issued on September 30, 1985.

This permit consists of 22 pages in Part I including effluent limitations, monitoring requirements, etc., Attachment I, Location of Sampling Stations, and 22 pages in Part II including General Conditions and Definitions.

Signed this 25th day of June 1992

Director
Water Management Division
Environmental Protection Agency
Region I
Boston, MA

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Except as specified in Paragraphs 1 through 19 herein, the permittee shall not discharge to the Merrimack River, a final effluent to which it has added any pollutants.

   a. Chlorine and bromine may be used as a biocide. No other biocide shall be used without written approval from the Regional Administrator and the Director. The term chlorination will include bromination, if bromine is used. For this permit total residual oxidants (TRO) is synonymous with total residual chlorine (TRC). The chlorination cycle shall not exceed two hours in any one day for any one unit. Simultaneous multi-unit chlorination is not allowed.

   b. The discharges shall not jeopardize any Class B use of the Merrimack River and shall not violate applicable water quality standards. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged at the frequency and level disclosed in the application, provided that such discharge does not violate Section 307 or 311 of the Act or applicable water quality standards.

   c. All live fish, shellfish, and other aquatic organisms collected or trapped on the intake screens shall be returned to their natural habitat. All solid materials except for naturally occurring materials such as leaves, branches, grass, and so forth, will be removed from the screens and have land disposal.

   d. This permit shall be modified, revoked or reissued to comply with any applicable effluent standard or limitation issued or approved under Section 301(b)(2)(C) and (D), 304(b)(2), and 207(a)(2) of the Act, if the effluent standard or limitation so issued or approved:

      (1) contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or

      (2) controls any pollutant not limited by this permit.

If the permit is modified or reissued, it shall be revised to reflect all currently applicable requirements of the Act.

e. The term "Regional Administrator" means the Regional Administrator of Region I of the U. S. Environmental Protection Agency and the term "Director" means the Director of the Water Supply and Pollution Control Division, New Hampshire Department of Environmental Services.

f. It has been determined, based on engineering judgement, that the circulating water intake structure presently employs the best technology available for minimizing adverse environmental impact. Any change in the location, design or capacity of the present structure shall be approved by the Regional Administrator and the Director. The present design shall be reviewed for conformity to regulations pursuant to Section 316(b) of the Act when such are promulgated.

g. The combined thermal plumes for the station shall; (a) not block zone of fish passage, (b) not change the balanced indigenous population of the receiving water, and (c) have minimal contact with the surrounding shorelines.

h. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

i. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 CFR 122.42):

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

(a) One hundred micrograms per liter (100 ug/l);

(b) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(c) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or

(d) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f) and New Hampshire regulations.

2. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

(a) Five hundred micrograms per liter (500 ug/l);

(b) One milligram per liter (1 mg/l) for antimony;

(c) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or

(d) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f) and New Hampshire regulations.

j. Water drawn from fuel oil tanks shall not be discharged into the Merrimack River.

k. There are two (2) discharges which are not covered by this NPDES permit and are permitted by the following regulatory agencies: New Hampshire Department of Environmental Services - Wetlands Board and the U.S. Army Corps of Engineers. As a cautionary note, these discharges must satisfy New Hampshire Water Quality Standards (see Part I.C.1.f.).

l. Conceptual plans for the necessary construction associated with the segregation of the ash settling pond from the nearby wetlands shall be submitted to the State for approval within one month of the effective date of this permit.

m. Construction of the required facilities shall begin within 90 days after the permittee is in receipt of all requisite permits or a later date as approved by the EPA and the State. The permittee shall notify EPA and the State within 30 days of receipt of all requisite permits.

n. All construction required by the plans shall be completed and the facilities placed in operation within 12 months after receipt of all requisite permits or at a later date as may be approved by the Regional Administrator and the Director.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 001: Circulating Cooling Water from the MK-1 condenser outlet.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	69.1	Continuous	Calculate[b]
Total Residual Oxidants (mg/l)	----	0.20	Weekly, When in use	Grab

b. Based on pump curves, hours of pump operation, and 190 feet river levels.

c. Simultaneous multi-unit chlorination is not allowed. Samples for Total Residual Chlorine measurement shall be taken during the chlorination of circulating water.

d. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: At a representative point prior to discharge into the cooling canal, see Part c.

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

3. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 002: Circulating Cooling Water from the MK-2 condenser outlet.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	187.2	Continuous	Calculate[b]
Total Residual Oxidants (mg/l)	----	0.20	Weekly, When in use	Grab

b. Based on pump curves, hours of pump operation, and 190 feet river levels.

c. Simultaneous multi-unit chlorination is not allowed. Samples for Total Residual Chlorine measurement shall be taken during the chlorination of circulating water.

d. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: At a representative point prior to discharge into the cooling canal, see Part c.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 003: Circulating Cooling Water (001 & 002) including Ash Settling Pond Discharge (003A/003B), and West Yard Drain.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	265.3	275.4	Continuous	Calculate (@ 190′ elevation)
Oil and Grease[h] (mg/l)	-----	Report	Monthly[g]	Grab
Dissolved Oxygen (% Saturation)	-----	75 (minimum)	Monthly	Grab
Total Residual Oxidants[1] (mg/l)	-----	0.026[2]	Monthly[i], When in use.	Grab
pH[c] (range, in s.u.)	6.5-8.0[h]		Continuous	Continuous
N-5, River Water pH (range, in s.u.)	Report Range		Continuous	Continuous

b. Simultaneous multi-unit chlorination is not allowed.

c. The pH shall not be less than 6.5 standard units (s.u.) nor greater than 8.0 s.u., or shall be as naturally occurs in the receiving water. The discharge pH shall be monitored continuously (see Parts I.A.12.a. and I.C.1.a.).

d. There shall be no discharge of oil sheen, floating solids, or visible foam in other than trace amounts.

e. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: At a representative point prior to discharge of the cooling canal into the receiving water.

f. Temperature - See Paragraph 11, page 16 of 22, for "Temperature Monitoring and Power Spray Module (PSM) Operation".

g. Required only when oil sheen is observed; otherwise report results based on daily observations.

h. Required for State certification.

i. Based on a review of the monitoring data collected during the first 12 months at Outfall 003, the monitoring frequency and testing requirements may be reduced, if the test results are consistently below the minimum level (ML).

SEE PAGE 9 OF 22 FOR AN EXPLANATION OF THE NUMERICAL SUPERSCRIPTS

EXPLANATION OF THE NUMERICAL SUPERSCRIPTS USED ON PAGE 8 OF 22 OF THE PERMIT.

(1) The preferred method of analysis for Total Residual Chlorine is the Low-Level Amperometric Titration Method using a chart recorder if possible. The EPA approved method is found in Standard Methods for the Examination of Water and Wastewater, 17th Edition, Method 4500-CL E

An alternate method of analysis for Total Residual Chlorine is the DPD spectrophotometric, using a longer cell (e.g. 5 cm. to 10 cm. if possible. The EPA approved method (EPA no. 330.5) is found in Standard Methods for the Examination of Water and Wastewater, 17th Edition, Method no. 4500-Cl G or 408E (16th ed.).

(2) For this permit, the minimum level (ML) for Total Residual Chlorine (TRC) has been defined as 0.05 mg/l (50 ug/l) and that the value will be reduced as more sensitive test methods are approved by the EPA and the State of New Hampshire. A non-detect can only be a value below the ML of 50 ug/l. A result of a non-detect or a value of 50 ug/l will be considered in compliance with the permit limits. Values greater than 50 ug/l will be considered in non-compliance with the permit limits for TRC.

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

5. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 003A: Ash Settling Pond Discharge during routine operation.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	9.0	19.1	Continuous	Continuous
Oil and Grease (mg/l)	15.0	20.0	Monthly	Grab
Suspended Solids (mg/l)	30.0	100.0	Monthly	Grab
Total Copper (mg/l)	----	0.20	Quarterly	Grab
Total Iron (mg/l)	----	1.0	Quarterly	Grab
pH (range, in s.u.)	Report		Continuous	Continuous

b. The pH shall be monitored continuously during routine operations. Report the maximum and minimum values for the month.

c. There shall be no discharge of oil sheen, floating solids, or visible foam in other than trace amounts.

d. All routine analyses for each month will be grouped and reported on a single discharge monitoring report form.

e. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Point of discharge prior to dilution with the circulating cooling water (at the weir).

f. See Part I.C.1.e. on coal pile runoff discharges to ash settling pond.

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

6. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 003B: Ash settling pond discharge during chemical cleaning.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	----	19.1	Continuous	Continuous
Suspended Solids (mg/l)	30.0	100.0	Daily	Composite
Total Copper (mg/l)	----	0.077	Daily	Composite
Total Iron (mg/l)	1.0	1.0	Daily	Composite
Oil and Grease (mg/l)	15.0	20.0	Daily[g]	Grab
pH (range, in s.u.)	Report[b]		Continuous	Continuous

b. Report the maximum and minimum values for the month.

c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

d. Chemical cleaning operations shall occur no more than 30 days during each year. The permittee shall notify the Director or designee at least 72 hours in advance of such operations and furnish an estimate of the length of time over which the operation shall occur and the chemicals to be used. Sampling shall begin at least 3 hours after the discharge from the wastewater treatment basins begins (see Parts I.C.1.c. and I.C.1.d.).

e. The analytical results for each chemical cleaning operation shall be reported on a separate discharge monitoring report form.

f. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Point of discharge prior to dilution with the circulating cooling water (at the weir).

g. Required only when an oil sheen is observed; otherwise one grab sample per cleaning event.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

7. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 004(**NB**): MK-1 Screen Wash-water; MK-2 Screen Wash-water; MK-1 Screenhouse Floor Sump water; MK-2 Screenhouse Floor Sump water; MK-2 Screenhouse Roof Drain; and Fire Protection Overflow effluent subject to the following conditions:

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (GPD)	----	Report	Annual	Estimate-total
Oil & Grease[b] (mg/l)	----	Report Range	Annual[d]	Grab[c,b]
pH[b,f] (range, in s.u.)	6.5 - 8.0		Annual	Grab[c,b]

NB Designated as Outfall(s) XXX and YYY in Form 2C of Application (5 separate pipes).

b. Required for State Certification.
c. Report range of results of grab samples of each of the 5 pipes.
d. Annual sample only required if oil sheen is observed; otherwise report results of daily observation.
e. All live fish, shellfish and other organisms collected or trapped on the intake screens should be returned to their habitat, sufficiently distant from the intake structures to prevent re-impingement. All solid materials except for naturally occurring materials such as leaves, branches, grass, and so forth will be removed from the screens shall have land disposal (see Part I.A.c.).
f. The pH shall not be less than 6.5 standard units (s.u.) nor greater than 8.0 s.u., or as naturally occurs in the receiving water (see Part I.C.1.a.).
g. There shall be no discharge of floating solids, oil sheen or visible foam in other than trace amounts.
h. Samples taken in compliance with the monitoring requirements specified above shall be taken at some representative point prior to discharge to the receiving water.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

8. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 005(NB): MK-1 Maintenance Sump discharge and MK-2 Maintenance Sump discharge subject to the following conditions:

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (GPD)	----	Report	Once/Annual-Outage	Estimate Total
Oil & Grease[b] (mg/l)		Report Range	Once/Annual[d]-Outage	Grab[c,b]
pH[b,e] (range, in s.u.)	6.5 - 8.0		Once/Annual-Outage	Grab[c,b]

NB Designated as Outfall(s) XXX in Form 2C of Application (4 separate pipes).

b. Required for State Certification.
c. Report range of results of grab samples of each pipe for which a discharge occurs.
d. Sampling during the annual outage is only required if an oil sheen is observed; otherwise report the results of daily observation.
e. The pH shall not be less than 6.5 standard units (s.u.) nor greater than 8.0 s.u., or as naturally occurs in the receiving water (see Part I.C.1.a.).
f. There shall be no discharge of floating solids, oil sheen or visible foam in other than trace amounts.
g. Samples taken in compliance with the monitoring requirements specified above shall be taken at some representative point prior to discharge to the receiving water.
h[b]. The permittee shall report in the discharge monitoring report which of the sumps was discharging at the time of the sample collection.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

9. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 006(NB): Stormwater from the Southeast Yard Drain.

a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Flow (GPD)	----	Report[b]	Annual	Estimate
Oil and Grease (mg/l)	----	Report	Annual[c]	Grab
TSS (mg/l)	----	Report	Annual	Grab
pH (range, in s.u.)	Report Range		Annual	4 Grabs

NB Designated as Outfall(s) XXX in Form 2C of Application.

b. Report actual flow based on annual precipitation data or estimated flow derived from a 10 year, 24 hour rainfall event.

c. Required only when an oil sheen is observed; otherwise report results of observation during rain events.

d. There shall be no discharge of floating solids or visible foam in other than trace amounts.

e. Samples taken in compliance with the monitoring requirements specified above shall be taken at some representative point prior to discharge to the receiving water.

10. Biological Monitoring

a. Downstream Fish Passage Agreement

The New Hampshire Fish & Game Department, the U.S. Fish & Wildlife Service, PSNH, and other Federal and State agencies are currently negotiating an agreement relative to the downstream migration of anadromous fish at several hydroelectric facilities on the Merrimack River. When the agreement is finalized, the technical advisory committee (see Part I.A.15.) may recommend revisions to the fish impingement (Part I.A.10.b.) and pump entrainment (Part I.A.10.c.) monitoring programs described below. Upon approval, by the Regional Administrator and the Director, the revisions shall become an enforceable element of this permit.

b. Impingement Monitoring

1. PSNH shall conduct impingement monitoring at the Merrimack Station when flows from Garvins Falls Station drop below 900 CFS during any period from July 1st through October 15th. Impingement monitoring shall consist of collecting all fish from both MK-1 and MK-2 travelling screen washes during one continuous 48-hour period per week.

has this ever been done?

2. PSNH shall report in writing to the New Hampshire Fish and Game Department (NHF&GD), U.S. Fish and Wildlife Service (USF&WS), New Hampshire Department of Environmental Services (NHDES), and the U.S. Environmental Protection Agency (USEPA) any extraordinary impingement events (EIE) at Merrimack Station. An extraordinary impingement event is defined as an event when 50 or more fish at any one time, of any size or species, are either distressed or killed as a result of impingement. Twenty-four hour reporting of EIEs will be in accordance with Part II, Section D, Part 1.e, and annual reporting of EIEs in accordance to Paragraph 13.

c. Pump Entrainment Monitoring, American Shad and River Herring Ichthyoplankton

PSNH shall conduct River Herring Ichthyoplankton and American Shad Ichthyoplankton pump entrainment monitoring at the Merrimack Generating Station from June 15th to July 15th when significant

numbers of upstream migrating River Herring and American Shad pass the Hooksett Dam. "Significant" numbers of upstream migrating River Herring and American Shad will be as defined in the downstream fish passage agreement (Part I.A.10.a.). Ichthyoplankton pump entrainment monitoring will be conducted at MK-1 and MK-2 for 24 continuous hours, twice per week.

11. Temperature Monitoring and Power Spray Module (PSM) Operation

a. Continuous River Surface Temperature Monitoring

Continuous river surface temperature monitoring in the vicinity of the Merrimack Generating Station shall be conducted on the following basis. Open-river surface water temperatures will be continuously monitored at control Station N-10, effluent discharge station Zero, and mixing zone Station S-4 (see ATTACHMENT I). The discharge Station Zero temperature monitoring probe will remain in place and in operation year round. Stations N-10 and S-4 temperature monitoring probes will be removed from the river and from operation in the fall when ambient river water temperatures have dropped below 40^0F (4.4^0C) and replaced when ambient river water temperatures have risen to above 50^0F in the spring. Ambient river water temperatures for removal and installation of the probes are defined as measured at Station N-10 for the fall probe removal, and at the Merrimack Station Unit II condenser inlet for the spring probe replacement.

Monitoring program data shall be reported in accordance with Paragraph 13, below.

b. Power Spray Module (PSM) Operation

The power spray module system shall be operated, as necessary, to maintain either a mixing zone (station S-4) river temperature not in excess of 69^0F, or a station N-10 to S-4 change in temperature (Delta-T) of not more than 1^0F when the N-10 ambient river temperature exceeds 68^0F. All available PSM's shall be operated when the S-4 river temperature exceeds both of the above criteria (reference: "Predictive Model and User Guide for Spring and Fall Optimization of Power Spray Modules").

does anyone have this?

12. pH Monitoring and Dissolved Oxygen

    a. The permittee shall continuously monitor the pH of both an ambient river control station and the circulating water discharge. The circulating water discharge shall be monitored at the point of cooling canal discharge into the Merrimack River (at the footbridge in the vicinity of Station Zero-west). The ambient river control station will be at a Merrimack Station inlet structure (Station N-5).

    b. The permittee shall continuously monitor the dissolved oxygen content of both an ambient river control station and the circulating water discharge. Dissolved oxygen monitoring will be suspended in the fall when ambient river water temperatures have dropped below 40^0F (4.4^0C), and reinstated when ambient river water temperatures have risen to above 50^0F in the Spring (reference the temperature monitoring requirements of Section 11.a, above). The circulating water discharge shall be monitored at the point of cooling canal discharge into the Merrimack River (at the footbridge in the vicinity of Station Zero-west). The ambient river control station will be at the Merrimack Station inlet structure (Station N-5).

13. All biological and hydrological monitoring program data shall be submitted to the NHDES, NHF&GD, USF&WS, and the Regional Administrator by December 31 of the following year.

14. The permittee has provided the State and EPA with the following agreement, entitled "A Comprehensive Plan for Provision of Anadromous Fish Passage Measures and Facilities at PSNH's Merrimack - Pemigewasset River Hydroelectric Dams, FERC Projects No. 1893, 2456, and 2457." The permittee shall also provide all technical advisory committee (TAC) members (see Part I.A.15., below) with copies of the annual March 1st update to this plan and any technical reports associated with it.

15. A technical advisory committee (TAC) shall be organized. Committee members shall be senior biologists appointed by the Administrators (or appropriate Division/Branch Directors) of the following federal and state regulatory agencies: NHDES, NHF&GD, USEPA, and USF&WS.

16. The permittee shall propose to the TAC a program and a schedule, for review and confirmation, which resolves the issues identified in Sub-part 17, below.

    a. The TAC may accept, reject, or modify the proposed program and schedule. After acceptance of the program and schedule by the TAC, the program will be submitted to the Regional Administrator and the Director for approval. Upon approval, the proposed program and schedule become enforceable elements of this permit.

    b. Annually after the effective date of this permit, the permittee may propose changes to the approved biological and hydrological programs to the Regional Administrator and the Director - (a proposed modified program for the calendar year of 1993 must be submitted prior to January 1, 1993, for review and acceptance by the TAC). After the TAC acceptance, and upon the approval of the Regional Administrator and the Director, the proposed modified program(s) will become an enforceable element of this permit.

    c. All biological and hydrological programs will be under the guidance of the TAC; i.e., review of the proposed programs, analytical protocols, and analysis of data. Based upon its conclusions, the TAC will make recommendations for modification(s) of the permit to EPA and the State to ensure protection of the aquatic community. Biological and hydrological study reports shall be submitted on a semi-annual basis with an annual report summarizing the previous year's information and conclusions.

17. Within 90 days after the effective date of the permit, the permittee shall schedule and conduct a planning meeting with the technical advisory committee. The primary objective of this meeting is the design, development and implementation of an experimental program to resolve the following issues:

    a. Determine the seasons at which the anadromous fish will migrate and the temperatures that would affect/impede this migration and life cycle temperature requirements related to each species.

    b. Determination of the thermal plume-configuration in the river and its effect(s): 1) on anadromous fish during the migration seasons and 2) upon indigenous fish under low water conditions.

c. Determination of a seasonal T_{max} at the point of discharge from the canal into the river, that would protect the anadromous and indigenous fish.

sounds like it was never determined to be protective

d. Determine, if found to be necessary, a summer Delta-T (downstream temperature minus upstream temperature) that would protect the anadromous and indigenous fish from artificially-heated river water that would be injurious to the aquatic community.

e. Determination of a maximum "Delta-T" (discharge temperature minus intake temperature) at the head of the canal due to a major plant/condenser shutdown. (Note: This is the maximum temperature excursion expected in the canal during an abrupt shutdown of the power plant during the winter.)

f. Assess the resident fish population in the cooling-water canal, and determine if this population is a significant portion of the local fishery and must be protected. If the resident fish require protection, recommendations are to be made as to the type of physical or operational improvements are required.

g. Assess the existing historical chemical, thermal, and biological data and determine the scope of new data that must be obtained to augment the existing data base for these studies.

h. Provide copies of a written agenda and work scope to accomplish the above objectives to each TAC member approximately 2 weeks prior to the above planning meeting. The TAC may approve, modify, or disapprove the proposed work scope in a formal meeting.

18. The permittee shall submit the following reports to the TAC for their approval unless the date(s) is extended by the Regional Administrator and the Director after recommendation by the TAC:

a. A preliminary report summarizing the information required in Part I.A.17.g. and a projection of the biological and hydrological work to be accomplished during the Summer of 1993, on March 1, 1993.

completed 12/92

b. A draft final report on March 1, 1994.

19. Based on the results of the final report, this permit may be reopened (40 CFR 122.62) to define a T_{max} or "Delta-T" or any other parameter required to control the discharge from the cooling water canal into the river.

was this report ever generated?

20. Assuming that the cooling water canal discharge temperature must be reduced by some amount, conduct a cost/benefit study for the appropriate techniques to lower the cooling water canal discharge-temperature by 2, 4, 6, etc. degrees F. This systems-study will be submitted within six (6) months of the submittal date of the final report to the TAC.

B. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the completed reporting period.

Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

Environmental Protection Agency
NPDES Program Operations Section
P.O. Box 8127
Boston, MA 02114

The state agency is:

Department of Environmental Services
Water Supply & Pollution Control Division
Permits and Compliance Section
Hazen Drive, P.O. Box 95
Concord, New Hampshire 03301

C. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements:

a. The pH for class B waters is 6.5-8.0 S.U. or as naturally occurs in the receiving water. The 6.5-8.0 S.U. range must be achieved in the final effluent unless the permittee can demonstrate to the Division: 1) that the range should be widened due to naturally occurring conditions in the

receiving water or 2) that the naturally occurring source water pH is unaltered by the permittee's operations. The scope of any demonstration project must receive prior approval from the Division. In no case shall the above procedure result in pH limits less restrictive than any applicable federal effluent limitation guidelines.

b. Within 30 days of the effective date of the permit, the permittee shall provide representative sampling locations for both Outfalls 001 and 002, upstream of any mixing with the cooling canal.

c. The permittee has determined that there is at least a three hour delay between discharges of treated wastewater from the wastewater treatment basins and the detection of the plume in the ash settling pond outfall. Therefore sampling conducted during chemical cleanings (Outfall 003B) must begin between three and four hours after the discharge from the wastewater treatment basins begin.

d. Weekend chemical cleaning discharges are prohibited unless provisions are made to allow for the collection by the NHDES of 24 hour composite samples during normal weekday working hours.

e. Coal pile runoff discharges to the ash settling basin are prohibited unless treated first in the wastewater treatment facility.

f. The permittee is authorized to discharge treated wastewater from the intake dredge de-watering lagoon via two 24 inch pipes. In addition to the conditions described in NH Wetlands Board Permit No. 88-1328 issued on April 30, 1991, or any subsequent revisions, the permittee shall insure that the discharges do not increase the naturally occurring turbidity of the Merrimack River by more than 10 nephelometric turbidity units.

2. This NPDES Discharge Permit is issued by the U.S. Environmental Protection Agency (EPA) under Federal and State law. Upon final issuance by the federal EPA, the Water Supply and Pollution Control Division may adopt this permit, including all terms and conditions, as a state discharge permit pursuant to RSA 485-A:13.

Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of State law, such permit shall remain in full force and effect under Federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit, if adopted as a state permit, shall remain in full force and effect under State law as a permit issued by the State of New Hampshire.

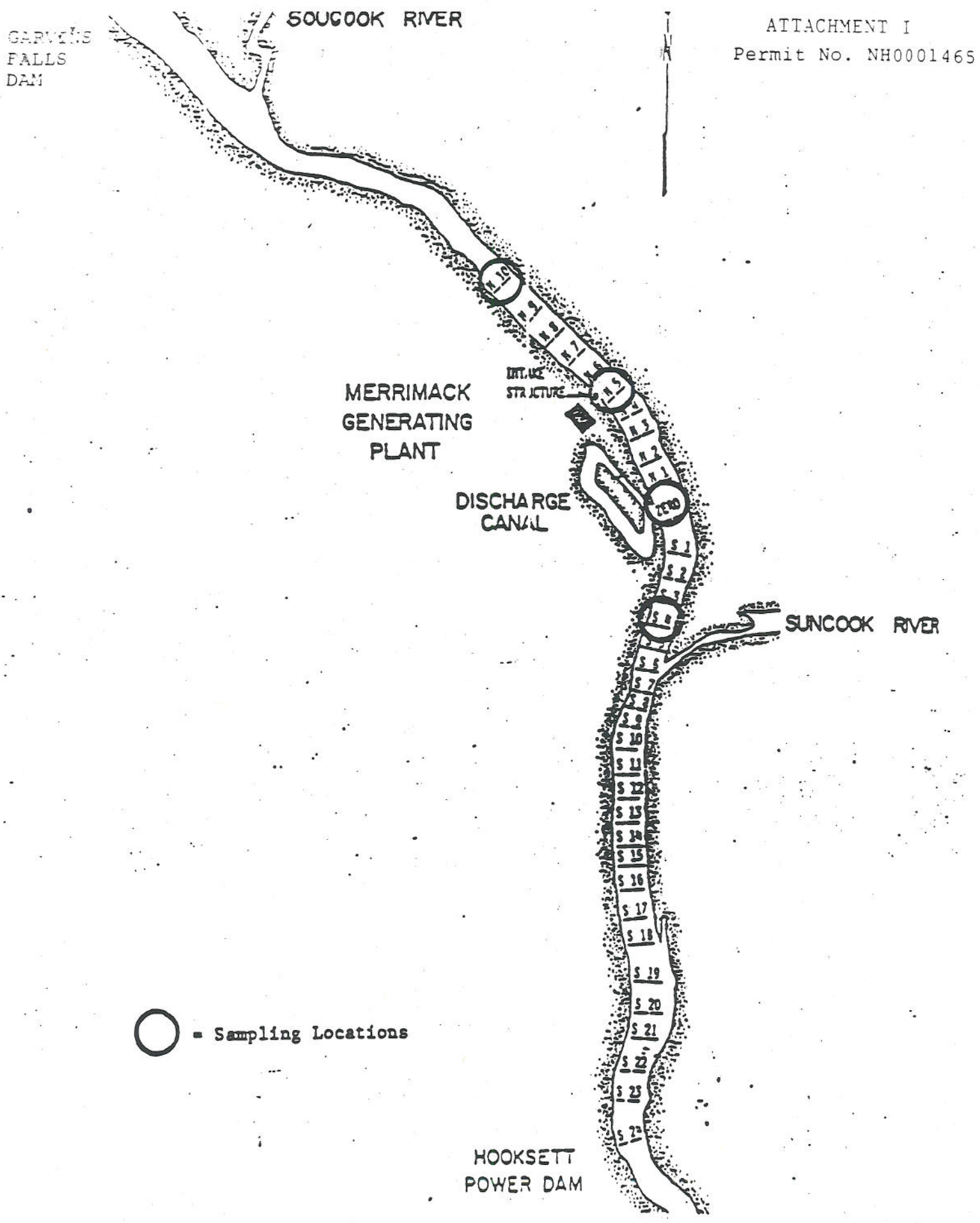

Figure 1. Location of sampling stations. Hooksett Pond, Merrimack River, NH.